which applies very well except as regards the size of the spores which he gives as 6 μ in diameter. Notwithstanding this slight discrepancy I judge from the general description that our species is *P. digitatum*, or at least a form of it, an opinion which is corroborated by that of Mr. J. B. Ellis, to whom specimens were sent for determination.

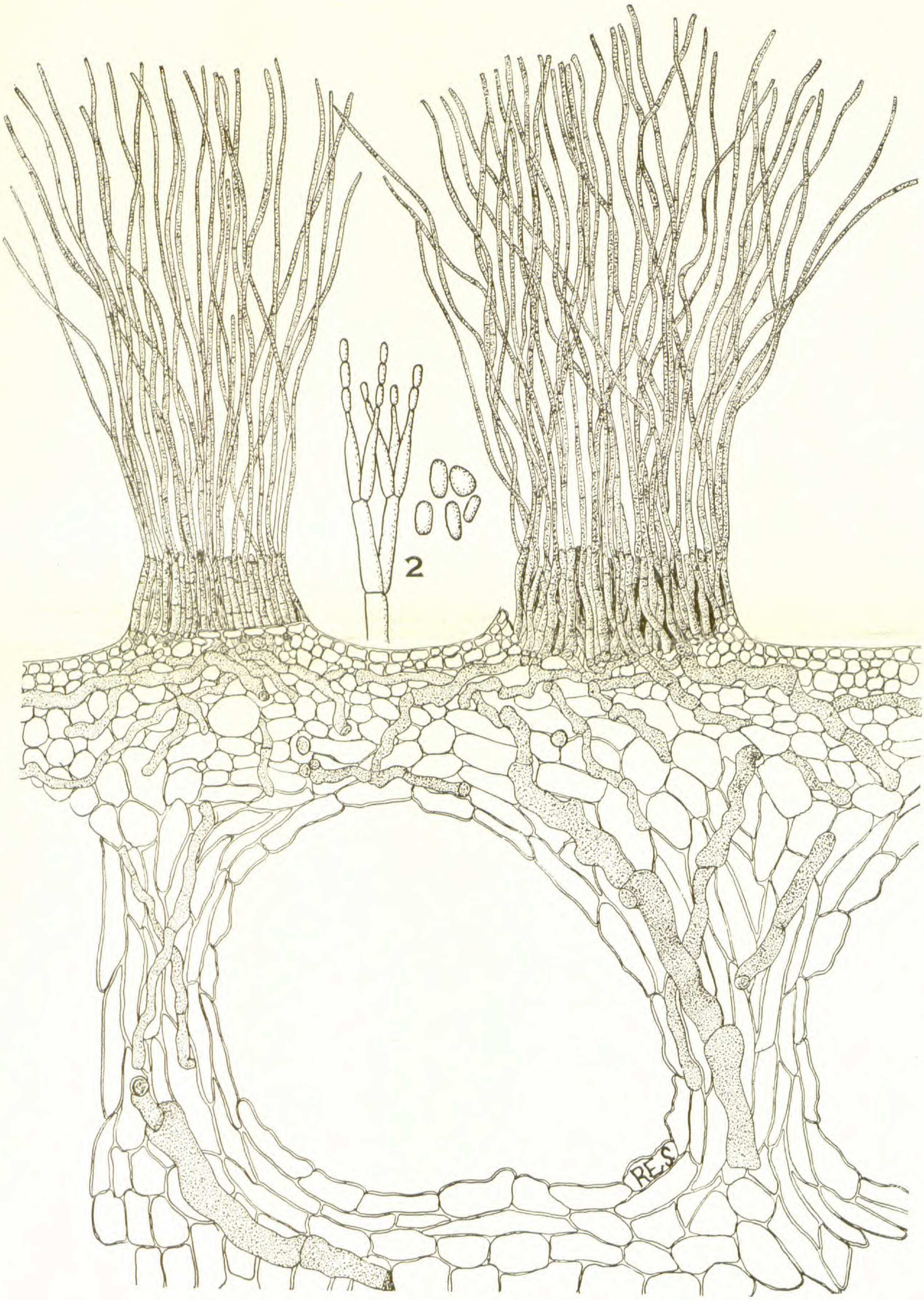
After isolating this fungus attempts were made to produce the decay in sound oranges by-infection with spores from artificial cultures. In some cases the spores were simply placed on the rind without puncturing it, while in others the rind was broken. The same was also tried with spores of *P. glaucum*. In each case the oranges were placed in a moist chamber to ensure the germination of the spores. These experiments showed that the characteristic decay is produced by *P. digitatum*, but not by *P. glaucum*, though the latter may come in eventually and much more readily where the rind is injured. It was also found to be greatly favored by a moist atmosphere and close packing together of the fruit.

In the accompanying plate there is shown an enlarged section of the decaying orange rind. Ramifying through the cells are seen the numerous very large filaments which produce the decay. At the surface the filaments aggregate here and there into little pustules which send out clusters of aerial hyphæ as shown in the figure. These form the white mold which appears on the surface of the decaying fruit. On the ends of these filaments the spores are produced (as shown at *2*), which give the mold its brown color.

It is interesting to note that since these studies were made the laboratory where they were carried on has become thoroughly infested with *P. digitatum*, which appears at every favorable opportunity, even more commonly than *P. glaucum*.—RALPH E. SMITH, *Mass. Agricultural College.*

NOTES ON NEW MEXICAN FLOWERS AND THEIR INSECT VISITORS.

PROFESSOR HERMANN MÜLLER, in *The Fertilization of Flowers* 570, remarks that in his experience it was rare to find a particular insect visiting exclusively or almost exclusively a particular flower. He cites only seven instances of this sort, all bees. Dours, in his monograph of the bee genus Anthophora (1869), remarks: "Quelques-unes, toutefois, fréquentent avec plus de prédilection les mêmes espèces



SMITH on "SOFT SPOT" of ORANGES.

de plantes. Ainsi, l'*Anthophora femorata* reste fidèle à l'*Echium vulgare;* l'*Anthophora funcata* compose sa pâtée sur la *Melissa officinalis;* l'*Anthophora mixta* visite exclusivement les differentes espèces de *Stachys*, le *Stachys hirta* surtout." This relates to Europe ; in our eastern states Robertson and Patton have recorded similar instances. It must be clearly recognized, however, that in the regions mentioned such instances are exceptional ; and, as Müller remarks, if each flower had its own exclusive visitors, the number of visits would not depend upon its conspicuousness as compared with other flowers.

In New Mexico, however, it is very common to find species of bees practically confined to particular species of flowers. The large genus Perdita (80 species are now known) is with few exceptions confined to the arid region, and repeated observation shows that most of the species, at least, are practically confined to one kind of flower. The same may be said to a less extent of arid region species of Heriades, Colletes, Calliopsis, etc., but there are many genera (*e. g.*, Halictus) of which the species range far and wide over the blossoms, as do their representatives in damper climates. It is to be remarked, further, that those flowers which have their special species of Perdita, and therefore might be thought independent of outside help, are many of them extremely conspicuous. Nothing could be more conspicuous than the splendid orange yellow heads of *Baileya multiradiata*, or the beautiful creamy flowers of the species of Mentzelia. One thing, however, may lessen the value of the Perditæ, and that is that they are small, and do not take long flights ; it may therefore be advantageous to attract some Melissodes or Megachile, bringing pollen from a distant plant, even when the attendant Perditæ are in profusion.

Another thing which one has to notice is, that the honey bee, now common everywhere, sets aside all rules of bee etiquette. It goes everywhere, flies at all hours of daylight, and revels in flowers which wild bees hold in abhorrence. Therefore, it seems to me, those experiments which have been made with honey bees to determine the action of bees in general are inconclusive. Yesterday evening I passed some bushes of *Datura metelioides*, with a profusion of great white flowers making the air heavy with their odor. The proper visitor of these flowers, a hawk-moth (Phlegethontius), was there, but there were also numerous honey bees, using the flowers as if they were their exclusive property.

There is a yellow flowered Sisymbrium common in the Mesilla

valley, either a form of *S. canescens* or a closely allied species. It comes into flower very early; this year I found the first on January 31. It is visited in February by honey bees, but not by native bees, which are not out so early. Nevertheless, by the end of February it has set numerous pods. This would not call for particular comment but for the fact that by the middle of April, when the native bees are out, it proves to be a most attractive bee plant. That is to say, it is very attractive to bees (mostly Andrenidæ), but can do quite well without them. Persons observing the flowers at different times of the year might thus reach very different conclusions.

It is also true, with some of our flowers, that observations made in different seasons or localities, though at the same time of the year, would yield quite different results. For example, take the cultivated plums in the Mesilla valley, the white flowers of which are very attractive to bees, especially Andrenidæ. On April 9 to 12, 1895, on the farm of the Agricultural Experiment Station, Miss J. E. Casad and the present writer took the following bees from flowers of plum: *Apis mellifica* L., *Osmia prunorum* Ckll., *O. cerasi* Ckll., *Nomada incerta* Cresson, *Synhalonia lycii* Ckll. (ined.), *Podalirius affabilis* Cresson, *Anthidium* sp. (escaped capture), *Prosapis mesillæ* Ckll., *Agapostemon texanus* Cresson, *Halictus*, 2 sp., *Andrena sphecodina* Csd. & Ckll., *A. jessicæ* Ckll., *A. prunorum* Ckll., *A. casadæ* Ckll., *A. nigerrima* Casad. *A. fracta* Csd. & Ckll., *A. electrica* Csd. & Ckll. There were also taken or seen various other insects, including *Danais archippus, Pyrameis cardui, Colias eurytheme, Heliothis armigera, Peridroma saucia, Evergestis simulatalis* Grote, among the lepidoptera; *Sarcophaga incerta* Walker, *Alophora luctuosa* Bigot (both det. Coquillett), among the diptera, etc. Now this year (1897) I was anxious to obtain further material of several of the above bees, and so watched the plum trees carefully. On March 24, in Mesilla, I caught one ♂ *Andrena fracta;* on April 4 one *Halictus amicus* Ckll. (ined.); on April 15 I saw a *Bombus;* but the species of 1895 were for the most part totally absent! I visited the very same trees at the very same time, and still failed to find the bees. Had a stranger come here to collect, with the account of the 1895 captures before him, surely he would have set me down a liar. It would have seemed incredible that the experience of one year should be so flatly contradicted by that of another.

I have been interested this year in watching in Mesilla our native *Sambucus mexicana*. Müller, writing of *S. nigra*, remarks on the absence